

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT A. BELLMAN, ROBERT SABIA,
LJERKA UKRAINCZYK, and MARC J. WHALEN

Appeal 2007-0413
Application 10/722,769
Technology Center 1700

Decided: February 6, 2007

Before EDWARD C. KIMLIN, THOMAS A. WALTZ, and PETER F. KRATZ, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-6, 8-12, 14-24, and 26-31. Claims 7, 13, and 25 stand withdrawn from consideration pursuant to an election requirement. Claim 1 is illustrative:

1. A chemical-mechanical manufacturing process for planarizing or polishing semiconductor, metal, dielectric, glass, polymer, optical, and ceramic materials, the process comprising:

- a) providing a workpiece;
 - b) providing a chemical-mechanical planarizing colloidal slurry, said slurry comprising non-agglomerated multi-component particles of a mixed oxide, oxyfluoride, or oxynitride composition, each particle exhibiting a modified surface chemistry performance and having an isoelectric point (pH_{IEP}) greater than the pH of dispersed particles in solution; and
 - c) abrading a surface of said workpiece with said multi-component particles.

The Examiner relies upon the following reference in the rejection of the appealed claims:

Yano US 6,740,590 B1 May 25, 2004

Appellants' claimed invention is directed to a chemical-mechanical manufacturing process (CMP) for planarizing or polishing a semiconductor, metal, dielectric, etc. The process entails using a CMP colloidal slurry comprising non-agglomerated multi-component particles of a mixed oxide, oxyfluoride, or oxynitride composition.

Appealed claims 1-3 stand rejected under 35 U.S.C. § 102(e) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) over Yano. Claims 4-6, 8-12, 14-24, and 26-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yano.

With the exception of the group of claims 16-20, Appellants do not present an argument that is reasonably specific to any particular claim on appeal. Accordingly, with the noted exception, all the appealed claims stand or fall together with claim 1.

We have thoroughly reviewed each of Appellants' arguments for patentability. However, we find that the Examiner's rejections are well-founded to the extent they are based on 35 U.S.C. § 103.

Yano, like Appellants, discloses a CMP process for polishing materials comprising an aqueous dispersion of multi-component particles comprising metal oxides, such as alumina, silica, titania, etc. (Yano col. 7, ll. 8-10). The dispersion of Yano comprises the inorganic particles of metal oxide electrostatically bonded to polymeric particles, and, as such, reads on the presently claimed multi-component particles of a mixed-oxide. In our view, the broadest reasonable interpretation of the recited "multi-component particles of a mixed-oxide" includes the particles of Yano having more than one component, i.e., a polymer and a metal oxide. The claim language does not require that the components of the particles be different, separate metal oxides. In any event, we fully concur with the Examiner that the Yano disclosure that "[t]hese polymer particles and inorganic particles may be of a single type, or two or more types may be used in combination" teaches, or at least suggests, that the inorganic particle may be a mixture of alumina, silica, titania, etc. (Yano col. 7, ll. 10-12). We are not persuaded by Appellants' argument that the pertinent reference disclosure "means that the particles with single but differing constituents as listed are used in combination" (Br. 8, penultimate ¶).

A principal argument of Appellants is that the particles in the Yano slurry are agglomerated, unlike the claimed non-agglomerated particles. However, Yano clearly teaches that the slurry is a *dispersion* of particles that preferably has a particle size in the range of 0.01-0.3 micron (Yano, col. 9, ll. 6-9). Since a dispersion of particles would not be considered an

agglomeration of the particles, and the preferred particle size range for Yano's dispersed particles corresponds to Appellants' particle size, we find no factual basis for concluding that the claimed slurry of non-agglomerated multi-component particles patentably distinguishes over the dispersion of aggregated multi-component particles of Yano. As pointed out by the Examiner, Figures 2 and 8 of Yano depict a dispersion of non-agglomerated aggregate particles. Furthermore, the appealed claims do not define the degree of minimal agglomeration that qualifies as "non-agglomerated." In our view, it is reasonable to conclude that the slurries of both Appellants and Yano experience some low-level of agglomeration, and Appellants have presented no objective evidence which establishes that slurries within the scope of the appealed claims are in some way different than the dispersed slurries of Yano with respect to the level of agglomeration.

As for the separately argued particle size ranges recited in claims 16-20, the Examiner appropriately cites col. 9, ll. 6-9 of Yano.

As a final point, we note that Appellants base no argument upon objective evidence of nonobviousness, such as unexpected results, which would serve to rebut the inference of obviousness established by Yano.

In conclusion, based on the foregoing, the Examiner's decision rejecting the appealed claims is affirmed.

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No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(I)(iv)(2005).

AFFIRMED

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